

CLAIMS

What is claimed is:

Claim 1 - A vise jaw with work stop, comprising in combination:

a vise jaw having a top opposite a bottom and a face extending between said top and said bottom, said face adapted to engage a work piece;

said top including at least one slot therein, said slot intersecting with said face;

at least one stop, said stop including a captured portion adapted to reside within said slot and a free portion adapted to extend out of said slot and beyond said face; and

said stop adapted to be removably attached to said vise jaw.

Claim 2 - The apparatus of Claim 1 wherein said top of said jaw is oriented parallel with said bottom of said jaw, with both said top and said bottom oriented perpendicular to said face.

Claim 3 - The apparatus of Claim 1 wherein said slot is configured as a groove having a substantially constant cross-sectional form.

Claim 4 - The apparatus of Claim 3 wherein said groove extends in a direction perpendicular to said face.

Claim 5 - The apparatus of Claim 3 wherein said groove includes a floor, said floor oriented in a plane parallel with said top of said vise jaw.

Claim 6 - The apparatus of Claim 5 wherein said groove includes tapered walls extending between said floor and said top at opposite sides of said floor.

Claim 7 - The apparatus of Claim 6 wherein said captured portion of said stop has tapered surfaces with an angle of taper matching an angle of taper of said tapered walls of said groove.

Claim 8 - The apparatus of Claim 3 wherein said groove includes a pair of walls which taper from a lower portion of said slot to a portion of said slot adjacent said top of said vise jaw, said tapered walls oriented non-perpendicular with said top of said vise jaw.

Claim 9 - The apparatus of Claim 8 wherein said captured portion of said stop includes at least a portion thereof with a cylindrical contour, said cylindrical contour sized to abut portions of said tapered walls of said slot.

Claim 10 - The apparatus of Claim 9 wherein said slot is configured as a V-groove with said tapered walls joined together at a lowermost portion of said slot.

Claim 11 - The apparatus of Claim 3 wherein a threaded hole is provided within said groove, said captured portion of said stop including a bore therein adapted to be aligned with said threaded hole in said groove, such that a threaded fastener can pass through the bore and thread into said threaded hole to secure said stop within said groove.

Claim 12 - The apparatus of Claim 11 wherein said threaded hole extends perpendicularly into a floor in said groove, said floor oriented substantially parallel with said top of said vise jaw.

Claim 13 - The apparatus of Claim 11 wherein said threaded hole extends through a junction between a pair of tapered walls extending from said top of said vise jaw to a lowermost portion of said groove where said tapered walls come together, said threaded hole extending along a centerline substantially perpendicular with said top of said vise jaw.

Claim 14 - The apparatus of Claim 11 wherein said bore includes a step therein with portions of said bore above said step having a greater diameter than a diameter of a screw adapted to secure the stop within said groove, and with portions of said bore below said step having a diameter less than a diameter of said head of said screw and greater than a diameter of a threaded shaft of said screw.

Claim 15 - The apparatus of Claim 1 wherein said stop includes a key, said key including said captured portion therein having a size and shape complementary to a size and shape of said slot.

Claim 16 - The apparatus of Claim 15 wherein said captured portion of said key includes a pair of tapered surfaces on opposite sides of said key, said tapered surfaces

adapted to abut walls of said slot.

Claim 17 - The apparatus of Claim 16 wherein said walls of said slot taper at an angle non-perpendicular to said top of said vise jaw, said taper of said walls of said slot having an angle matching an angle of said tapered surfaces of said captured portion of said key.

Claim 18 - The apparatus of Claim 15 wherein said free portion of said key has a different cross-sectional shape than a cross-sectional shape of said captured portion.

Claim 19 - The apparatus of Claim 18 wherein said free portion of said key includes size surfaces which are planar, parallel to each other and adapted to be oriented perpendicular to said face and said top surface of said vise jaw when said key has said captured portion residing within said slot.

Claim 20 - The apparatus of Claim 1 wherein said stop includes a key, said key having said captured portion with a circular cross-section, said slot having tapering side walls adapted to abut surfaces of said circular cross-section of said captured portion of said key when said key is located adjacent said slot.

Claim 21 - The apparatus of Claim 20 wherein said key includes a bore passing entirely therethrough, and wherein said slot includes a threaded hole therein, said bore in said key adapted to be alignable with said threaded hole in said slot, such that a threaded fastener can secure said key to said slot in said vise jaw.

Claim 22 - A vise jaw with work stop, comprising in combination:

a vise jaw having a top opposite a bottom and a face extending between said top and said bottom, said face adapted to engage a work piece;

at least one slot formed in said jaw, said slot intersecting with said face;

at least one stop, said stop including a captured portion adapted to reside within said slot and a free portion adapted to extend out of said slot and beyond said face; and
said stop adapted to move relative to said face.

Claim 23 - The vise jaw of Claim 22 wherein said slot is in the form of a groove in said top of said vise jaw, said groove exhibiting a substantially constant cross-sectional size and shape as said groove extends away from said face.

Claim 24 - The vise jaw of Claim 23 wherein a centerline of said groove is oriented perpendicular to said face.

Claim 25 - The vise jaw of Claim 22 wherein said slot is in the form of a hole located below said top of said vise jaw and extending through said face of said vise jaw.

Claim 26 - The vise jaw of Claim 25 wherein said hole has a substantially round cross-section, said stop sized to fit into said hole.

Claim 27 - The vise jaw of Claim 26 wherein said captured portion of said stop is substantially round with a size not greater than a size of said hole, such that said captured portion of said stop can pass into and out of said hole.

Claim 28 - The vise jaw of Claim 27 wherein said captured portion of said stop is adapted to be press fit into said hole.

Claim 29 - The vise jaw of Claim 27 wherein said captured portion of said stop is threaded and said hole is threaded with threads complementary to threads on said captured portion of said stop, such that said stop can be threaded into and out of said hole.

Claim 30 - The vise jaw of Claim 27 wherein said top of said vise jaw includes a top bore extending down through said top and into said hole, said captured portion of said stop including a threaded bore therein, said threaded bore adapted to be aligned with said top bore, and a threaded fastener adapted to pass through said top bore and into said threaded bore, such that said stop can be secured within said hole.

Claim 31 - The vise jaw of Claim 30 wherein a central axis of said hole is oriented perpendicular to said face of said vise jaw.

Claim 32 - The vise jaw of Claim 22 wherein said stop includes a key with said captured portion having a geometry matching a shape and a size of said slot, such that

said captured portion of said key can fit within said slot.

Claim 33 - The vise jaw of Claim 32 wherein said slot is in the form of a groove extending down into said top of said vise jaw, said groove including tapering walls which extend downward from said top at an angle non-perpendicular to said top, said captured portion of said key including tapering surfaces, said tapering surfaces of said capture portion of said key having an angle matching an angle of said tapering walls of said groove.

Claim 34 - The vise jaw of Claim 33 wherein said tapering walls extend down from said top to a location where said tapering walls are joined together, such that said slot is configured as a V-groove.

Claim 35 - The vise jaw of Claim 33 wherein said groove includes a floor, said floor oriented parallel with said top and located below said top and between lower edges of said tapering walls.

Claim 36 - The vise jaw of Claim 35 wherein said floor includes a threaded hole extending perpendicularly into said floor, said captured portion of said key including a bore passing therethrough, said bore adapted to be aligned with said threaded hole in said floor, such that a threaded fastener can pass through said bore and into said threaded hole in said floor to secure said key to said slot.

Claim 37 - A vise jaw with included work stop, comprising in combination:

a vise jaw having a top opposite a bottom and a face extending between said top and said bottom, said face adapted to engage a work piece;

at least one slot in said vise jaw, said slot intersecting with said face between said top and said bottom;

at least one stop, said stop including a captured portion adapted to reside within said slot and a free portion adapted to extend out of said slot and beyond said face; and

said stop adapted to be removably attached to said vise jaw.

Claim 38 - The vise jaw with included work stop of Claim 37 wherein said slot is in the form of a cylindrical hole and said stop includes at least said captured portion having a substantially circular cross-section.

Claim 39 - The vise jaw with included work stop of Claim 38 wherein said top includes a top bore extending down into said hole, said captured portion of said stop including a threaded bore therein, said threaded bore adapted to be aligned with said top bore, such that a threaded fastener can pass through said top bore and into said threaded bore to secure said stop within said hole.

Claim 40 - The vise jaw with included work stop of Claim 39 wherein said hole is oriented perpendicular to said face.

Claim 41 - The vise jaw with included work stop of Claim 40 wherein said captured portion of said stop has a size and a shape similar to a size and shape of said hole.

Claim 42 - The vise jaw with included work stop of Claim 38 wherein said captured portion of said stop includes threads thereon, with said hole including threads therein matching said threads on said stop, such that said stop can be rotatably threaded into said hole and out of said hole.

Claim 43 - The vise jaw with included work stop of Claim 37 wherein said stop exhibits a press fit within said slot.